

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for processing databases in a system which includes a plurality of storage areas each storing a database and a plurality of computers each having a database management program (DBMS) running thereon which manages one of said plurality of storage areas, each said storage area being associated with only said DBMS managing said storage area and being accessed by only said DBMS, said method comprising:

when a failure has occurred in one of said plurality of computers as a failed computer, obtaining preset substitution information indicating that a storage area managed by a DBMS running on said failed computer is to be managed and accessed by a DBMS already running on another one of said plurality of computers as a substitute DBMS; and

based on said substitution information, changing association of said storage area with said DBMS on said failed computer to said substitute DBMS, said storage area to be managed by said substitute DBMS already running on said another computer.

2. (Previously Presented) The method as recited in claim 1, wherein said substitution information includes association information associating an identifier of said DBMS running on said failed computer with an identifier of said substitute DBMS already running on said another computer, said substitution information indicating that said storage area managed by said DBMS running on said failed computer is to be managed by said substitute DBMS already running on said another computer when a failure occurs.

3. (Previously Presented) The method as recited in claim 2, wherein said substitution information comprises a mutual substitution configuration in which two of the DBMSs are associated with one another whereby one of the two DBMSs is a substitute DBMS for the other of the two DBMSs as a failed DBMS mutually.

4. (Previously Presented) The method as recited in claim 2, wherein said substitution information comprises a substitution configuration in which a group of the DBMSs from a first DBMS to a last DBMS are associated with each other in a manner whereby a first DBMS is a substitute DBMS for a second DBMS which is a substitute DBMS for a third DBMS, and the last DBMS is a substitute DBMS for the first DBMS.

5. (Previously Presented) The method as recited in claim 2, wherein said substitution information comprises an n-to-1 substitution configuration whereby one of the DBMSs is a substitute DBMS for n of the DBMSs as failed DBMSs.

6. (Previously Presented) The method as recited in claim 1, wherein said substitution information includes a plurality of pieces of association information each associating an identifier of said DBMS running on said failed computer, an identifier of the substitute DBMS already running on one of a plurality of other computers, and priority information indicating a priority with one another, said substitution information indicating that said storage area managed by said DBMS running on said failed computer is to be managed by said substitute DBMS already running on one of said other computers selected according to said priority information.

7. (Previously Presented) The method as recited in claim 1, further comprising taking over processing from said DBMS on said failed computer by said substitute DBMS on said another computer based on said substitution information.

8 - 11. (Canceled)

12. (Currently Amended) A system for processing databases, said system comprising:

a plurality of storage areas each storing a database; and

a plurality of computers each having a database management program (DBMS) running thereon which manages one of said plurality of storage areas, each said storage area being associated with only said DBMS managing said storage area and being accessed by only said DBMS;

wherein each DBMS includes a substitution control section configured, when a failure has occurred in one of said plurality of computers as a failed computer, to obtain preset substitution information indicating that a storage area managed by a DBMS running on said failed computer is to be managed by a DBMS already running on another one of said plurality of computers as a substitute DBMS; and, based on said substitution information, to change association of said storage area with said DBMS on said failed computer to said substitute DBMS, said storage area to be managed and accessed by said substitute DBMS on said another computer.

13. (Previously Presented) The system as recited in claim 12, wherein said substitution information includes association information associating an identifier of said DBMS running on said failed computer with an identifier of said substitute DBMS already running on said another computer, said substitution information indicating that said storage area managed by said DBMS running on said failed computer is to be managed by said substitute DBMS already running on said another computer when a failure occurs.

14. (Previously Presented) The system as recited in claim 13, wherein said substitution information comprises a mutual substitution configuration in which two of the DBMSs are associated with one another whereby one of the two DBMSs is a substitute DBMS for the other of the two DBMSs as a failed DBMS mutually.

15. (Previously Presented) The system as recited in claim 13, wherein said substitution information comprises a substitution configuration in which a group of the DBMSs from a first DBMS to a last DBMS are associated with each other in a manner whereby a first DBMS is a substitute DBMS for a second DBMS which is a substitute DBMS for a third DBMS, and the last DBMS is a substitute DBMS for the first DBMS.

16. (Previously Presented) The system as recited in claim 13, wherein said substitution information comprises an n-to-1 substitution configuration whereby one of the DBMSs is a substitute DBMS for n of the DBMSs as failed DBMSs.

17. (Previously Presented) The system as recited in claim 12, wherein said substitution information includes a plurality of pieces of association information each associating an identifier of said DBMS running on said failed computer, an identifier of the substitute DBMS already running on one of a plurality of other computers, and priority information indicating a priority with one another, said substitution information indicating that said storage area managed by said DBMS running on said failed computer is to be managed by said substitute DBMS already running on one of said other computers selected according to said priority information.

18. (Previously Presented) The system as recited in claim 12, wherein the substitution control section of said substitute DBMS is configured to take over processing from said DBMS running on said failed computer based on said substitution information.

19 - 33. (Canceled)

34. (New) A method for processing databases in a system comprising a processing request receiving server, a plurality of storage areas, and a plurality of database access servers, wherein each storage area in the plurality of storage areas includes at least one database, and wherein each database access server in the plurality of database access servers is associated with a storage area in the plurality of storage areas, thereby enabling said each database access server to manage and access its associated storage area, the method comprising:

when a failure has occurred in a first database access server in the plurality of database access servers, obtaining preconfigured substitution information identifying a mapping between the first database access server and a second database access server in the plurality of database access servers, wherein the first and second database access servers are distinct;

based on the preconfigured substitution information, re-associating a storage area associated with the first database access server such that the storage area becomes associated with the second database access server, thereby enabling the second database access server to manage and access the storage area;

receiving a processing request directed to a target database access server in the plurality of database access servers, the processing request being received by the processing request receiving server;

determining whether the target database access server is in operation;

if the target database access server is in operation, forwarding the processing request to the target database access server, wherein the target database access server is configured to process the forwarded processing request;

if the target database access server is not in operation:

determining a substitute database access server for the target database access server based on the preconfigured substitution information;

modifying the processing request to include a substitution instruction; and

transmitting the modified processing request to the substitute database access server, wherein the substitute database access server is configured to identify the substitution instruction in the modified processing request, obtain execution environment information for the target database access server, switch an execution environment of the substitute database access server to that of the target database access server based on the execution environment information, and process the processing request on behalf of the target database access server.

35. (New) The method of claim 34, wherein the mapping associates an identifier of the first database access server with an identifier of the second database access server, the mapping indicating that a storage area associated with the first database access server is to be associated with the second database access server when a failure occurs in the first database access server.

36. (New) The method of claim 35, wherein the mapping further indicates that a storage area associated with second database access server is to be associated with the first database access server when a failure occurs in the second database access server.

37. (New) A system for processing databases, the system comprising:
a processing request receiving server;
a plurality of storage areas, each storage area including at least one database; and
a plurality of database access servers, each database access server being
associated with a storage area in the plurality of storage areas, thereby enabling said each
database access server to manage and access its associated storage area,
wherein the processing request receiving server is configured to:
receive a processing request directed to a target database access server in
the plurality of database access servers;
determine whether the target database access server is in operation;
if the target database access server is in operation, forward the processing
request to the target database access server, wherein the target database access server is
configured to process the forwarded processing request;
if the target database access server is not in operation:
determine a substitute database access server for the target
database access server based on preconfigured substitution information;
modify the processing request to include a substitution instruction;
and
transmit the modified processing request to the substitute database
access server, wherein the substitute database access server is configured to identify the
substitution instruction in the modified processing request, obtain execution environment
information for the target database access server, switch an execution environment of the
substitute database access server to that of the target database access server based on the
execution environment information, and process the processing request on behalf of the target
database access server.

38. (New) The system of claim 37, wherein the preconfigured substitution information includes a mapping associating an identifier of the target database access server with an identifier of the substitute database access server, the mapping indicating that a storage area associated with the target database access server is to be associated with the substitute database access server when a failure occurs in the target database access server.

39. (New) The system of claim 38, wherein the mapping further indicates that a storage area associated with substitute database access server is to be associated with the target database access server when a failure occurs in the substitute database access server.